THE LEISURE HOUR.

A FAMILY JOURNAL OF INSTRUCTION AND RECREATION.

"BEHOLD IN THESE WHAT LEISURE HOURS DEMAND,—AMUSEMENT AND TRUE KNOWLEDGE HAND IN HAND."—*Cowper*

RETURN FROM THE STROLL.

MAIDEN MAY.

CHAPTER XXIII.—CAUGHT IN A THUNDERSTORM.

HARRY'S ship had been paid off, and Headland having received his promotion, the two friends started in a post-chaise and four for London. It would have been unbecoming for two naval officers, with their pockets full of prize-money, to travel in a less dignified way.

They remained in town to attend a *levée*, when Captain Headland was presented on his promotion, and Harry on his return from foreign service. Headland was in no hurry to leave London, for, never having before been in the big city, he found much to interest him; but Harry was anxious to be at home. Julia had written him word that they hoped to have a number of visitors, and intended to give a *fête* in honour of his return.

They posted to Texford, agreeing that a pair of

horses would take them there as fast as four, which their dignity no longer required.

Headland received a warm welcome from Sir Ralph and Lady Castleton as their son's friend, and Julia extended her hand as if she had known him all her life. He thought her a very charming girl, and wondered that Harry had never spoken to him of her beauty. Her frankness soon set him at his ease. He had mixed but little in ladies' society, and at first felt awkward. Algernon was kind and polite, but was somewhat cold and stiff in his manner, like his father, and Headland suspected that he should never be very intimate with him.

Next morning Julia volunteered to show several of the guests who had lately arrived, including Captain Headland, over the grounds. Algernon had in the meantime asked Harry to ride with him, and invited their guest to join them.

"Miss Castleton has engaged me to be one of the walking-party, and as I am no great horseman, you will, I hope, excuse me."

Harry begged that he would do as he had promised. He wished to ride with Algernon to enjoy some private conversation. He had been struck by his brother's changed appearance. He had a short, teasing cough, of which, however, he made light, observing that it generally disappeared with the warm weather, though it annoyed him a little longer that year.

The brothers had much to talk about after their long separation. Harry inquired if any authentic account of their uncle's death had been received. Algernon replied that though their father and Mr. Shallard had made every possible inquiry, the only fact they had learned was that the ship he had sailed in had never been heard of, and that there was no doubt she had gone down in a hurricane which had occurred at the time she must have been at sea.

"It would be a trying state of things if our uncle were after all to make his appearance and claim the title and property," observed Algernon. "I suspect that our father would be very unwilling to give them up, and possession is nine-tenths of the law."

"Surely he would not hesitate if convinced of our uncle's identity," said Harry, "and would be thankful to welcome his brother back to life."

"He is so firmly convinced of his death that it would be difficult to persuade him to the contrary," replied Algernon. "For my own part, I am not ambitious of becoming a baronet, and as far as I am individually concerned I should be ready to welcome with sincerity our long-lost uncle."

"So should I," cried Harry, warmly; "and surely our father, with his political interest, can, if he chooses, obtain a baronetcy for himself."

"He would prefer exerting that influence in gaining a higher rank," observed Algernon, with a sigh. "He wished me to be in parliament, but only a few days ago, greatly to my relief, he acknowledged that he feared my health for the present would not enable me to stand the wear and tear I should have to undergo in the 'House.' I am afraid that it has greatly disappointed him. Probably he will wish you to take the place he intended for me."

Harry laughed heartily.

"I in parliament!" he exclaimed. "I should indeed feel like a fish out of water. I wish to stick to the service, and hope to get my flag some day."

"But there are naval men in parliament, and you may do that notwithstanding," said Algernon.

Harry inquired for their cousins, the Miss Pembertons. On hearing that they were still living there, he proposed paying them a visit.

"To tell you the truth, I have not called since we came to Texford," answered Algernon. "You know that they have peculiar notions. Our father, looking upon them as puritanical people, has no wish to have them at the house. I have not seen the old ladies for some years. I remember that they did not make a very favourable impression on me when I met them last."

"I suppose I may call on them," said Harry. "They were kind to me when I was a boy, and I liked Cousin Mary, as we called her."

"Yes, there can be no objection to your going," answered Algernon. "They will not consider it necessary to return your visit, and will look upon it as a kindness."

The young men had been riding on farther than they had intended, and being engaged in conversation while passing along lanes with high hedges on either side, they had not noticed a storm gathering in the sky. Emerging from the lanes, Harry invited his brother to take a gallop across the wide extended downs spread out before them, and thus they did not observe, till they turned, the thunder-clouds sweeping up rapidly towards them. They put their horses into a gallop. The downs, though at a distance appearing to be level, were intercepted by several deep ravines, and the young men had not gone far before they were compelled to turn inland by coming to one of the most rugged and wild of these ravines, the side of which was too steep to allow them to ride down it.

A little farther Harry observed a place which he thought they could descend without difficulty, and thus save some distance. As he reached the bottom, followed by Algernon, he saw nestling under a rock on one side a hut built partly of rough stones and partly of the planks of some wreck cast on shore. At the same moment a bright flash of lightning darted from the clouds, followed by a crashing peal of thunder, when immediately down came the rain.

"We may, at all events, find shelter in yonder hut," said Harry, "though it seems scarcely large enough to admit our horses; but I will hold them while you go inside."

They made their way down the ravine, when Algernon, dismounting, pushed open the door and ran in, while Harry, leading the horses, followed him.

At the farther end of the hut a woman was seated on a stool before the wood fire blazing on the hearth, over which she bent, apparently engaged in watching the contents of an iron pot boiling on it.

"Who dares intrude unbidden into my mansion?" she shrieked out, in a wild, unearthly tone, which made Algernon start back.

Her long grey hair hung down on either side of her colourless face, from which beamed forth a pair of wild eyes, glowing with the fire of madness. Her dress being of the same sombre hue as was everything in the hut, had, as Algernon entered, prevented him from observing her till she turned her face full upon him.

She rose as she spoke, confronting the two young men.

"Who are you?" she repeated. "Speak, or begone, and trouble me not."

"My brother would suffer should he get wet,"

said Harry, stepping in; "and I must beg you, my good lady, not to be annoyed if we remain till the storm is over. It will probably pass away in half an hour, and we beg not to interrupt you in what you are about."

"You are fair spoken, young sir, but you have not answered my question. Who are you? I ask again."

"We are the sons of Sir Ralph Castleton, and we came upon your hut by chance while looking for a place to obtain shelter from the rain."

"Spawn of the viper, how dare ye come hither to seek for shelter beneath my roof?" exclaimed the woman, in a voice that made the young man start, so shrill and fierce did it sound above the roar of the thunder, the howling of the wind, and the pattering of the rain. "A fit time ye have chosen to come and mock at me; but I have powers at my command to overwhelm you in a moment. See, the heavens fight on my side."

As she spoke a bright flash of lightning darted down the glen, which, with the crashing peal of thunder that followed, made the horses snort and plunge so violently that Harry had no little difficulty in holding them, and was drawn out from the doorway in which he had been standing.

"And you deem yourself the heir of Texford," she continued, in the same tone, gazing with her wild eyes intently fixed on Algernon. "Though you rejoice in youth and wealth, I see death stamped on your brow, and before many months have passed away, instead of dwelling in your proud and lordly hall, you will have become a tenant of the silent tomb. I can command the elements and can read the future. It was I who summoned this storm to drive you hither, that you might hear your fate—that fate which the stars last night revealed to me. Ah! ah! ah! you now wish that you had passed by instead of seeking shelter beneath my roof, but your destiny drove you hither, and against that you fight in vain."

Algernon, feeling that it would be wiser not to reply to the wild ravings of the strange creature, looked anxiously out of the hut, strongly inclined to make his escape. At last, the rain moderating, he rushed out of the hut.

Harry followed his example, and they rode up the glen as fast as the rugged nature of the road would allow them; the wild shrieks and cries of Mad Sal, as she watched them from the door of her hut, sounding in their ears till they gained the open downs.

"I am glad we are out of hearing of that dreadful old creature," said Algernon, as they galloped along; "I hope she will not prove a true prophetess."

"I don't believe in wizards or witches," answered Harry. "She has evidently some dislike to the name of Castleton, and hearing us mention it, vented her feelings by trying to frighten us."

"Poor woman, she is perfectly mad. I am curious to learn who she is," observed Algernon. "Perhaps Groocock or some of the Hurlston people may know."

Although the rain had moderated, the young men were nearly wet through before they had made their way across the downs, and instead of stopping at Hurlston, as they had intended, they rode on to Texford.

In spite of the exercise he had taken, Algernon complained of the cold, and Harry observed that he shivered several times; but as he hurried to his room immediately on his arrival, and changed his wet things, his brother hoped he would not suffer.

CHAPTER XXIV.—JULIA CASTLETON.

The party whom Miss Castleton had offered to escort round the grounds consisted of several ladies and gentlemen, most of them young, with the exception of an old military officer, General Sampson, who, however, was as active and gallant as the youngest; and a matronly dame, Mrs. Appleton, who went with the idea that a chaperone would be required on the occasion.

As is not unfrequently the case under similar circumstances, the party before long separated. The general and Mrs. Appleton had sat down to rest in a summer-house, while the rest of the company went on. Captain Headland, on leaving the house, wishing to be polite to all, had addressed himself to three or four of the young ladies in succession, but either finding the conversation uninteresting, or that he could not keep it up, had walked on by the side of Julia. He soon found that his tongue, before tied, became perfectly free. She had so many questions to ask about Harry and the various adventures they had gone through together, that he soon found he had plenty to say. He was led on to speak of himself—of the battles in which they both had taken a part. While he gave her rapid and brilliant accounts of them, he found her often looking up with her bright eyes fixed on his countenance. So interested did she become, that she forgot she had undertaken to act as guide to the rest of the party. Not till they had walked on a considerable distance, and had reached the opposite side of the lake, did she and the young officer discover that they were not followed.

"Our friends cannot be far behind us," she said. "We ought to go back, and we shall soon meet them. I promised to guide them through the labyrinth which leads to Fair Rosamond's Bower, as the summer-house on the top of the mound overlooking the lake is called, and no one will be able to find it."

"I was scarcely observing where we were going. What a beautiful view of the lake we have from hence," remarked Headland, as they turned.

"Yes, this is one of the most beautiful; but there are several other lovely points on the shores, especially at the farther end," said Julia; "I intended to have conducted our friends to them. This lake was, I believe, in our great-grandfather's time but little more than a wild-fowl decoy with almost bare shores. He had trees planted on the banks, and the lagoon deepened and considerably enlarged, while with the earth and gravel thrown out mounds were raised, which give the picturesque variety you observe to the banks."

They continued walking on, but none of their friends appeared, they having, as it happened, turned away from the lake in a totally opposite direction. Julia thought that they might have gone round to the side she had proposed visiting. She therefore led her companion in that direction.

Their conversation continued as animated as before. Headland, who had a real taste for the beauties of nature, admired the views which the lake exhibited; the wooded islands, the green points, the drooping trees and weeping willows hanging over the waters, their forms reflected on its surface; stately swans

with arched necks which glided by, leading their troops of cygnets. The only sounds heard were the splash of the fish as they leaped out of their watery home, the various notes of birds, and the subdued hum of insects flitting in the sunshine, where here and there an opening in the foliage allowed it to penetrate into the otherwise shady walk. They at length reached the end of the lake; it was the farthest point almost in the grounds from the house.

Just then the storm which had overtaken Algernon and Harry burst above Texford. It had come on so suddenly that not till a loud peal of thunder crashed almost above their heads were they aware of its approach.

"I fear the rain will come down before we can reach the house, Miss Castleton," observed Captain Headland. "If there is a boat near at hand, I might row you across the lake, which would both shorten the distance and save you the fatigue of walking."

"One of the boats is generally kept a little farther on, and if you think we can go faster by water I shall be much obliged to you."

Before the boat was reached heavy drops of rain began to fall.

"There is a summer-house close at hand overlooking the lake," said Julia, and led her companion to it.

They had scarcely got under shelter when the rain descended in torrents.

It was evident that she had unintentionally separated from their companions, so that he did not for one moment think her forward or designing. With her delicate and refined beauty he had been struck from the first, and was now still more pleased with her animated and intelligent conversation.

Although the rain at length ceased, the walks were so wet that Julia confessed she should prefer crossing the lake to returning home by land. At the other end of the lake an artificial stream of sufficient depth for the boat, known as the Serpentine, meandered through the grounds, and reached almost to the house. There were several rustic bridges which crossed it here and there, but they were of sufficient height to allow the boat to pass under them. Julia having told Headland where he could find the boat while she remained in the summer-house, he went to fetch it. As it was kept under a shed it was perfectly dry. He handed her into it, and pushing off from the bank they commenced their voyage.

The sun again shone forth brightly, and the air felt fresh and pure after the storm. For some distance he rowed close to the shore, where a number of water-lilies floated on the surface. He had seldom seen such beautiful flowers. He described, however, the marine gardens in the Eastern seas, visible through the clear water for a great depth below the surface.

"Have you been much in the East?" asked Julia.

"I believe I was born there," he answered, forgetting his intention of not speaking of himself. "Indeed, my early days were at all events passed in that part of the world. I have been at sea the greater portion of my life, and have comparatively little knowledge of the shore or the dwellers on it. I had no notion that there were such beautiful places as this appears to me in England. I conclude there are not many such?"

"Oh yes!" said Julia; "there are many grounds far more magnificent and extensive, though I might not admire them more, and certainly should not love them so much. Though we have not been here very long, I spent months when I was a girl with our uncle, Sir Reginald, and became greatly attached to the place. We did not know at the time that we should ever come to live here, as papa's elder brother was then alive. Though he has not since been heard of, he is supposed to be dead, and papa consequently came into possession of the title and estates."

Julia said this, not feeling that there was any necessity for keeping the matter a secret from their guest; indeed, she would not have been surprised had he replied that her brother had told him of the circumstances.

Headland rowed slowly over the calm water; he was in no hurry to finish the voyage, and the young lady seemed to enjoy the scenery. Now and then he stopped and let the boat float quietly on, that they might admire some fresh point of view.

At length they reached the end of the lake, and entered the Serpentine. There was just room to row the boat along between the grassy banks. Here and there the trees overhung the channel, and sometimes they had to bend down to avoid the branches. They had nearly reached the end, where there were some stone steps with a gravel walk above them leading directly to the house, and a rustic bridge spanning the stream.

The old general, who had taken post on the bridge, and had been for some time watching their approach, hailed them.

"Hilloa, gallant son of Neptune, I congratulate you on discovering our missing Ariadne, who was to have been our guide through the labyrinthine walks of Texford. Fortunately, we missed our way, and found ourselves close to the house just as the storm came on."

"I must apologise, General Sampson, for leaving you and our other friends; but we had got to some distance before we discovered that you were not following," said Julia, somewhat annoyed at the general's remarks.

"The truth is, my dear young lady, it is we who have to apologise to you for not keeping pace with your fairy-like movements; and fearing that Sir Ralph and Lady Castleton might justly blame me, as the senior of the party, for deserting you, I hurried out as soon as the rain ceased in the hopes of finding you before you reached the house, to entreat you to offer some excuse for my conduct. But I suspect the captain is chiefly to blame, and if you will enter into a compact with me we will sacrifice him."

"I am ready to be the victim should Miss Castleton consider any excuse necessary," said Captain Headland, as he handed Julia out of the boat, while the old general stood on the top of the steps.

They walked together to the house, the latter talking in the same quizzical style. Julia ran in, glad to escape him.

"You will be a lucky dog, captain, if you succeed in securing so fair a prize," whispered the general, giving the young officer a not very gentle dig in the ribs; "I have entertained some thoughts in that direction myself, but I see that a soldier has no chance with a naval man as his rival."

"Really, general, you allow your imagination to go too fast. I am a comparative stranger to Miss Castleton, and have no merit which could justify me in hoping—"

"Of course, of course, my young friend; we must all feel our personal want of merit when a lady is concerned. Nevertheless, she may possibly regard you in a more favourable light than you suppose, from the reports we have heard of your gallant deeds."

ENGLISH IN JAPAN.

AT the beginning of last year ("Leisure Hour" for January) we gave an account of the great city of Yedo, in Japan, with a native map of the city. Our readers will be interested in perusing the following letter from Professor Summers, formerly of King's College, London, now holding the important official post of Professor of English Literature, under the Japanese Government.

Here we are located in the heart of this great city, a sort of Nineveh, in the enclosure of the "Original Sacred Hall," *i.e.*, the Temple of Confucius. We are on one of the highest points of the city. The famous Suruga Tai stands over against us; that is a little higher; and the *hori*, or canal surrounding the *Soto shiro*, rolls its muddy waters (*en route* for the Sumida Gawa) between us. This latter is in a deep cutting, the farther bank being adorned with magnificent trees, and foliage in great variety. Our house consists of six good rooms (without fireplaces) and a cook-house, bath-room, and offices; a good garden surrounds the house, which has also a verandah on two sides. The mornings are cold, and after rain very damp, but the glorious sun comes out speedily and brightens everything. From our verandah we can see the famous Fujiyama, now covered with snow, about fifty miles distant; and as I ride down to the Kaisei Gakko, a mile and a half away, on a sturdy Japanese pony, I see the Fujisan in all its beauty, glistening in the early morning sun (at 6.45). Up to the end of October the college hours were from 7 A.M. to 11 A.M. This month (November) we commence at 8 and go on until 12.

The Kaisei Gakko, or Imperial College, was opened formally by H.M. the Mikado, the day after I landed, so I was able to be present. A number of chemical experiments of the highest class were gone through by Professor Dr. Ritter, in German, being interpreted in Japanese by a youth who had learnt German. The Tenshi was dressed in European military dress; on his left sat H.I.H. Hyashi Fushimi no Miya, and on the right another relative of the Emperor. In a line on the left were the ministers of state, with Sanjo at their head, and a number of secretaries connected with the Mombushō (educational department); on the right the foreign professors and teachers, German, French, Russian, and English, with also a Chinese, Sien Sang, and some visitors who had been invited. After the chemical experiments, the Emperor inspected the grounds and viewed some gymnastic exercises which the youths went through. His Majesty then received the staff of the college in audience, and thanked them, declaring the college to be duly inaugurated. A collation of sweetmeats and wines was afterwards served, and a few days' holiday was given. About a week afterwards a banquet was held in the college-hall, at which the minister of public instruction presided, and speeches were made in English, French, German, and Japanese. My own work consists of giving instruction in English, Latin Grammar, Geography, and Logic, to five classes more or less advanced. The students are very diligent and intelligent, but they have not made much advance in speaking English; their accent is defective, but with care I think it may be improved.

Now as regards Yedo (Tokei or Tokiyo) itself, I was a good deal disappointed at first. The place is very roomy, full of people, and in some parts very dirty. The deserted yashikis, or palaces of the ex-daimios, are being utilised for military purposes, and they serve as public offices. The roads in these aristocratic quarters are broad and well paved, but the narrow streets are full of hollow places filled with mud and water. The railway station lies some three miles away, and on my journeys to and fro during the first week, I was led by my *Jinriki sha* men through most wonderful places. The city is thronged with these vehicles (small cabriolets or Bath-chairs pulled by a man) day and night until nine or ten o'clock, and it is curious enough to see how deftly they are managed. Each man carries a paper lantern at night, and cries "*Hay! hay!*" as he goes along to clear the way for his vehicle. Sometimes we have two men at once, and then they can proceed at a rapid pace. The houses are very low, and the drainage is very bad, and although the people are cleanly in themselves, their houses would not, I fear, bear inspection.

While there is much to cavil at, there is very much to rejoice at in the progress which the country is making. They have a postal system on the European model. Telegraph stations and police stations are established; policemen parade the streets in a dress somewhat like ours, only the hat is like an inverted bowl; pillar-boxes for letters are at short distances on street corners; schools are buzzing everywhere. The Government has a normal school close by here, conducted by an American, Mr. Acott, who has trained the masters to teach the boys in classes, sitting on forms with desks before them just as in our common schools. It was interesting to me to see the teachers pointing out Chinese characters on a black board, and requiring the little fellows to give the Japanese name and meaning. In arithmetic they follow our system, and it is not uncommon to hear the multiplication table going in English just as at home. In the evening the pupil-teachers are chiming away at their Chinese studies. If the shade of Confucius could visit the scene within the precincts of the temple devoted to the sage's philosophy, how considerably astonished it would be.

The suburbs of Yedo are delightful. To-day—the Emperor's birthday, and the occasion of a public holiday—I have ridden out to Wo ji, the temple devoted to Shinto worship about four miles from here, and I was much gratified by the beautiful country, the market-gardens, the farmhouses, the clean, bright lanes, and quaint dwellings. The temple itself is a study. The fox is figured everywhere in stone. Superstition is rife here. Respectable and intelligent-looking men were bowing down to senseless figures and shrines. One worshipper ascended to a shrine, and pulling a rope he rang a bell, to call attention to his presence, I suppose; then he cast in his half-pence through a wooden grating in front, and immediately commenced his devotions, standing and bowing most reverently before the shrine. In a few minutes all was over and he returned. I felt how much there is yet to be done in Japan.

MATTHEW MORRISON: AN AUTOBIOGRAPHY

CHAPTER XII.—THE CARRUTHERSES.

AFTER Archie had left us we had moved into a more airy and commodious house. Our new flat was on a very quiet stair, so quiet that for some time we knew not our next door neighbours even by sight. Several weeks elapsed before I saw one of them, though I was daily out. Nor had my mother met them; and Nelly, who had, knew only through the milk-woman that the family consisted of a widowed mother and two daughters, and that the latter were mantua-makers. Their house, though on the same floor, was much inferior to ours, being contracted by a building behind; and they kept no servant; the younger sister, who was somewhat deformed, doing the work of the house when her health permitted, while the elder sat constantly sewing. Nelly thought that the mother must be bedridden, for she never saw her nor heard her voice when both doors chanced to be open at the same time.

My curiosity became excited about this singularly quiet family, and I confess that latterly I was oftener upon our common stair than I needed to be. It was some time, however, before it was gratified, and then it was only the deformed girl that I met. She passed me shyly and hurriedly the first few times. She was respectably but very plainly dressed. It was some time before I summoned courage to give her "Good day." When I did so she returned my salutation quietly but courteously; but it required many such greetings to make us acquainted with each other.

Still I had never seen the other sister, though Nelly said she had occasionally noticed her go out in the evenings as if to carry work home to her employers. "She was a delicate-looking thing," Nelly said, "and seemed as if she needed baith fresh air and sweet milk to make her strong; and she doesna look ower happy like," added Nelly, who had much shrewdness, "though maybe it's the late hours, for I think they sometimes sit very late at their work, that gies her that patient suffering kind o' look."

I was touched by the picture Nelly had drawn. The image of the pale, quiet girl toiling, perhaps beyond her strength, for a maintenance—Nelly thought they were poor—took strong hold of my imagination, and though I was generally backward in making new acquaintances, I felt a considerable desire to know these Carrutherses—for that was their name. Miss Kemp, who knew something about almost everybody, was able to give us some information concerning them. The father had been clerk many years in the chambers of a relation of her mother's, who, in consideration of his long services, had settled a small annuity upon his widow, sufficient to pay rent and taxes, but the daughters had to work for their livelihood and hers.

"I remember my cousin Montgomery spoke highly of the family," said Miss Kemp, who, however, had a good word to say of everybody, "and especially of the elder daughter, who, she said, was the principal support of the family, for the younger had a weak spine, which unfitted her for much labour, and the mother had had some kind of shock after her husband's death—which was sudden—that had left her very helpless, and deprived her of the use of speech. Dear me!" added Miss Kemp, her eyes filling with tears, "I should really like to be of some service to them, if I only knew how."

My mother thought that, being so near a neighbour, she might venture to call upon them. "And I shall give Miss Carruthers my new gown to make."

"To be sure," said good Miss Kemp, cheerily, "we can both be customers, and I shall do my best to get them more."

But I myself was fated to be the first visitor. On the second evening after this conversation I returned from my walk unusually early, to find the house door locked. The fact was that Miss Betty and her maid, who accompanied her mistress wherever she went, had gone to spend the evening with a friend, and as my mother herself was going out, she had given Nelly liberty till eight o'clock, not expecting me to return before that hour. I rung the door bell several times, and was very uneasy at hearing no movement within the house—fearing that Nelly might have met with some accident and be lying within unable to help herself. Nelly's holidays were so rare that her absence did not occur to me. I was in the act of stooping down, trying to see into the house through the keyhole, when the opposite door opened, and the girl with whom I was now on speaking terms looked out.

"I heard your bell ring more than once," she said; "and as I saw your servant go out some time ago, I came to offer to take any message."

Thanking her, I turned to go down-stairs, meaning to proceed to the meadows and rest on one of the benches there till Nelly was likely to have returned. But I suppose that Alison—for that was her name—saw that I was fatigued, for after a moment's hesitation she stepped after me, and considerately invited me to wait in her mother's house till ours was opened. Now though here was an excellent opportunity of getting acquainted with the family, I was naturally so bashful that my first impulse was to refuse it, but Alison kindly pressing her invitation I yielded, and followed her into the house. It was not so well lighted as ours, besides being smaller. The narrow lobby, however, was very clean, and so was the girl's house-dress, though faded and shabby. In it her deformity was more striking than in her street one, and, like the generality of those who suffer from this affliction, her countenance wore an expression of pain and irritability. Closing the house door after admitting me, she silently led the way into their sitting-room.

It was an ordinary-sized parlour, plainly and scantily furnished. At the heavy old-fashioned table of almost black mahogany, which occupied the centre of the room, stood with her back to me when I entered, a young slightly-formed woman, who was shaping some garment which was spread out on the faded baize cover. An old woman, who seemed half asleep, was seated in a large chair, made to run easily on castors, by the fireside. She was dressed in well-worn widow's weeds, but looked very decent and respectable. My unexpected appearance roused her a little, and the young woman turning round at sound of my step, seemed much surprised. Alison briefly mentioned who I was, and the situation in which she had found me, and then, having placed a chair for me at the opposite side of

the fireplace to her mother's, she retired to the window and took up a seam that lay there.

They were so shy and quiet themselves that I had to exert myself to talk. I naturally addressed myself at first to the elderly woman; besides, I have always found it easier to speak to old folks and children than to young grown-up people, especially of the female sex. But I was soon checked by the elder young woman.

"My mother cannot answer you, sir, I am sorry to say," she said in a low clear voice, which was very pleasant to listen to; "she hears what is said to her, but for some years she has lost the power of speech."

My embarrassment had made me forget what Miss Kemp had told us. I regarded the poor old lady with great compassion. Her bodily affliction had doubtless somewhat obscured the brain, and rendered her vacant and listless like. But she showed that she understood the observations I had made by nodding her head and feebly smiling in answer. My remarks had broken the ice, and I was able to carry on a conversation with the two young women, or rather with the one who had just spoken, for Alison took little share in it.

I found Jeanie Carruthers a modest, sensible young woman. She was not forward to talk, nor was she probably much accustomed to converse with strangers; but there was a native politeness about her that doubtless made her feel she would be wanting in hospitality if she did not endeavour to entertain their unexpected guest. I was evidently no stranger to her by name, and she knew that I was studying for the ministry. I soon felt at my ease with her, and we gradually got into very interesting talk. In the course of it I learned that these young women—the elder could not have been more than two-and-twenty—had not been out of town for years. Jeanie Carruthers, of course, did not say that it was owing to straitened means, merely that their work kept them closely occupied, but the reason was obvious.

"Poor thing!" thought I, as I looked at her, "I wish you were rambling over our green braes instead of hanging over that weary seam, which, I suppose, is never out of your hands from one year's end to another; it would bring a glint of red into that colourless face." They were sewing mournings, and their pale complexions contrasted strikingly with the black material.

Jeanie Carruthers was not what the world calls a beauty, but her face grew wonderfully upon my liking during the time that I conversed with her. Her figure was rather tall, and had a slight stoop, partly perhaps caused by weakness, and partly by her occupation. I particularly remarked her hands, which were very white and thin, almost transparent they seemed to me. Her hair and eyes were dark, and her brow broad and smooth. She resembled her sister, but she had not the sickly look, nor the fretful expression which spoiled Alison's face. There was, as Nelly had said, a look both of patience and sadness in it; as if her life had been a joyless and struggling but not a repining one. She seldom raised her eyes from her work, so that I was able to examine both her and the room—her figure concealing me from Alison's observation, and the poor old mother having dropped into a slumber.

I thought I could discern indubitable signs of poverty in the apartment, which was almost chillingly clean, notwithstanding the work that must constantly be going on in it. Everything to my eye had a pinched and meagre aspect. The carpet was so worn, and so much darned, that the pattern was scarcely recognisable; and the heavy mahogany chairs, of the same date as the table, and probably bought second-hand when the parents began housekeeping, had many a patch of black moreen ingrafted on their original haircloth. The grate was contracted by a couple of bricks, so as to contain only a very small fire, and it was a cold backward spring that one; however, the old mother had a warm shawl around her shoulders, and her nether limbs were carefully happed with another. Both girls looked as if they were insufficiently fed; but I have generally observed this appearance in solitary females, especially those who gain their livelihood by the needle; and it arises, probably, from that feeble appetite and irritable state of nerves which make them prefer tea for its soothing qualities to more substantial food.

I sat upwards of an hour with them, though I heard Nelly unlock our door long before I took my leave. They must also have heard her, but they were too well bred to take notice of it. On going, I ventured to say that as we were such near neighbours I hoped the acquaintance just begun would not be allowed to drop; on which both the young women smiled, and assured me that they would always be glad to see me. The poor old lady had wakened up, so I pressed her nerveless hand and came away, escorted to the door by Alison.

I soon got into an almost daily habit of visiting the Carrutherses, for I never found myself in the way, or caused any interruption to the work. Besides their customers they had no acquaintances, as they had no time for visiting; and the monotony of their lives was probably the reason why they took so kindly to me at the very first; and their society did me much good.

I speedily found that there were many trivial attentions I could pay them, and for which they were most grateful. They were passionately fond of flowers, a taste, however, which they could seldom indulge, for they could not afford to purchase them. A scraggy myrtle and a rose-tree stood in the window on a small round table, and they were tended as their choicest treasures. On Saturdays I often took walks into the country to procure flowers for them, after witnessing the pleasure that a simple posy could confer on these closely-confined young women. It was touching to see how they prized and cherished these flowers, sometimes gathered merely from the hedges and hillsides, and it was a sufficient reward to me for the longest and most fatiguing walk. I was as disappointed as they when rainy weather set in and prevented me from obtaining a supply. They thought that I took these rambles for my own pleasure, and they were very grateful to me for thinking of their tastes while enjoying my exercise. They never imagined that the sole motive which at that busy time took me so many Saturday afternoons from home was to obtain this little treat for them.

I also used to read aloud to them when I had more leisure than usual and my mother was too busy to miss me. This was a great pleasure, and helped on the work wonderfully. Alison was fond of poetry—Jeanie had a more practical turn. She liked history and books of travels, especially in America. Indeed, she seemed so interested in everything con-

nected with that country that at first I thought they might have relations there, till assured of the contrary. I was a zealous frequenter of bookstalls at that period, having a little spending money, owing to some teaching I had obtained through Mr. Kemp, and many a volume did I procure from the college library expressly for Jeanie and Alison Carruthers.

They liked me to talk to them about my native place, its kindly people, quiet hills, and green pastures; and ere long they were familiar with all the parish traditions. About our old home life there, my father and my sister Mary, they would often question me with simple interest; and gradually they grew so associated with that life that it seemed to me as if they as well as we had, years ago, sat together round the manse fireside.

Sometimes, but very rarely, one of them would take a walk with me. It could only be when business was slack, for they could not afford to leave their work. It was a great enjoyment to them—the more precious that it came so seldom. Our walks were little varied,—they were either in the direction of the sea or by the foot of Arthur's Seat towards Duddingstone. The latter was the favourite,—its wild features and fresh, breezy air had a wonderful charm for the poor girls, who were compelled for six days in the week to pursue a monotonous calling in a close room, commanding no view but the opposite side of the street. Till they became acquainted with me they had not for years, they assured me, enjoyed even this simple pleasure, for they could not get out together, and they were too timid and spiritless to walk alone.

What pleasant walks these were through the romantic scenery of what is now the Queen's Park! When requiring to rest, we used to climb a short way up the hillside out of the usual track, and seated on the grass, would gaze at our ease on the widespread prospect, ever discerning new beauties to point out to each other. Then, when refreshed, we would wander on, gathering sprigs of heather, and deep blue vervain, and graceful tufted grasses, to form a nosegay for the parlour, which, carefully watched, would serve to beautify it for the following week. I look back to these walks with a strange tenderness that years ago would not have been unmixed with pain.

I had not known the Carrutherses many months before I discovered that Jeanie had many things to try her patience and spirits. For so young and delicate a woman she had a heavy and unusual burden to bear. Not only was the poor mother almost entirely helpless—she had fortunately the use of her hands, and could amuse herself with knitting—but Alison was subject to severe illnesses, which for days and sometimes weeks incapacitated her from assisting her sister; and she was apt at all seasons—and no wonder, considering her bodily ailments—to be captious and irritable in her temper. She was jealous of being counted a burden by her sister; and when in this morbid mood she would say sharp, unkind things, for my presence soon ceased to be a restraint to her, that I marvelled Jeanie could bear so calmly. At other times she would be seized with sullen fits, and would remain silent for hours together; though it was to her own discomfort, for Jeanie being the more skilful workwoman, had often to direct her in her work. And sometimes she would fall into violent hysterical weepings, which were painful to witness, and which required much soothing and firmness to check. Poor Alison! hers was truly a weak physical frame, and sickness and penury had soured a kind and generous nature.

The patience with which Jeanie bore all this made a deep impression upon my mind. The only feeling that these ebullitions of temper seemed to excite in her was pity. She had often to nurse her mother and sister in addition to her usual work; often, too, when I thought that she required nursing herself. It was distressing to me to see her pale cheeks and dim eyes at these seasons, and to know that when our house was shut up for the night, Jeanie Carruthers would still be working by the light of a single candle, finishing some task which necessity rendered imperative. But she was one who never complained of fatigue or talked of herself. My respect for Jeanie Carruthers grew with my knowledge of her.

This was a very happy period of my life. The hours spent in the Carrutherses' parlour were among the pleasantest that have fallen to my lot. I felt myself of use to these poor girls, and their society filled the void which Archie and Mr. Meggat had left behind them. My quiet ways suited them. They were interested in all my anxieties, which at that time were many, for I had now applied to be taken upon trials as a probationer, and was preparing for my appearance before the presbytery.

We would often amuse ourselves by picturing the parish of which I was to be the pastor. We agreed that it was to be far away from towns, a peaceful solitary place, where the Sabbath-bell would summon a kindly primitive people into the small hillside or moorland sanctuary. In imagination we went the round of my ministerial duties: visited the sick and poor, and yearly catechised the whole of my flock. And we had even some idea that a neat cottage among the hills might be discovered, where Jeanie and Alison could make gowns and bonnets for the farmers' wives and daughters, instead of the burghers' families of Edinburgh. Ah, me! it was simple castle-building.

SOME NOTES ON MUSICIANS.

AMONG the chief things which strike us on reading the biographies of musicians, is the early age at which they become possessed, as it were, by the musical furor, the tenacity with which they hold to their purpose, and the means they will resort to to gratify their passion. If they cannot get musical instruments they will sometimes make them or invent new ones. Thus Eulenstein, fifty years ago, learned to produce surprising harmonies from jews-harps, of which he would put two or three in his mouth at a time. Peasants, musically bitten, have been known to harmonise sticks and stakes cut from a hedge and nailed to a gate or a barn door; and others have beaten out melodies from old horseshoes. Pico, the Tuscan shepherd, whom many of our readers will remember, performed ravishing airs and fioriturasa on a little wooden whistle the length of his thumb, and which had but three vents—the only instrument which as a child he had been able to procure. It is recorded of Dr. Arne that he studied music in secret, in spite of his father, who had destined him for the law; that he smuggled a spinnet into his bedroom, and deadening the sound by tying his handkerchief over the strings, pursued his art with success without the knowledge of his parent, who at length, surprised

by the spectacle of his son leading the band at a private concert, was induced to withdraw his opposition.

The story of Handel's childhood is very similar. His father was a physician, and wished his son to be a lawyer; fearing this desire might be thwarted by the boy's fondness for music, he banished all instruments from his house, and forbade the performance of music altogether. But the child contrived, by the aid of a servant, to get an old clavichord conveyed to a garret, and here he practised alone during the long hours of the night, until an accident betrayed the wonderful proficiency he had made, and he was permitted to embrace the profession he was destined so greatly to adorn and glorify.

When Haydn was a child of five years, music was his one delight. He possessed no instrument, but he shaped two pieces of wood to resemble a fiddle and a bow, and with these he would take his stand among the village band and pretend to play. The schoolmaster, who was the sole musical instructor, noticing how thoroughly in time were the little urchin's movements, kindly took him in hand and thus prepared the way for his future renown. The child of five years, with the sham fiddle, was destined to compose hundreds of the most tender, graceful, and exquisite pieces, and to crown all with that wondrous oratorio which is the only one that in England divides popular favour with the "Messiah." Sebastian Bach, whose genius rivalled that of Handel, was no less enthusiastic as a child. His father dying before Sebastian was ten, left him to the care of an elder brother. The brother, envious of the child's talent, refused him the use of a book containing a number of fine compositions, for which he intensely longed. The boy contrived to claw the book through the lattice-work of a cupboard in which it was locked. Every night he got out the book and applied himself to copying the music, working by moonlight often when he had not a candle, and in the course of six months completed the task.

HANDEL AND PRINCE GEORGE (AFTERWARDS GEORGE III).

It is Mozart, however, who presents the most remarkable instance of musical precocity. When scarcely more than an infant he used to sing his evening hymn to an air of his own before lying down to rest. He played admirably on the piano-

forte at four and five, and would interrupt his performances to fondle a favourite cat, or to race round the room with a stick between his legs for a horse. At six he improvised with the skill and taste of a finished musician, modulating from key to key with scientific precision. He seems to have mastered the rules of composition by a kind of intuition, and not by study. Before he was eight he had composed several sonatas for the harpsichord, with violin accompaniments set in the most masterly and finished style. It is curious that he had also an early passion for arithmetic, and all his life was fond of figures, and singularly ready and expert in making calculations, a peculiarity that was shared by Storace, his contemporary and the author of several English operas which still hold their place in the musical world.

We will now look for a moment or two at the personal characters of the three greatest musicians of their century, if not of all time. We English know Handel best, for he was one of us, though an alien by birth. His character had three distinguishing traits—manly independence, generosity, and irritability of temper. We see, in his biography by Victor Schœlcher, that he always speaks his mind; he will not flatter, he will not fawn. He is daunted at no presence, not even at a monarch's—for is he not also a monarch in his art? In the scene our artist has represented he is at home with the royal family; he plays, and asks the future king if he likes the music. The prince replies to the effect that he likes it much. Mark the gentle but uncourtier-like rejoinder: "A good boy, a good boy!" says Handel, "you shall protect my fame when I am dead." Not a word about "prince," or "royal highness," or "your grace," or anything of that sort; the future monarch is for Handel a good boy, and that is all. So much for his independence, now as to his generosity; this is so prominent in every act of his life that it is needless to insist upon it. As a youth of nineteen he returned the money his mother sent him, because he could do without it. As a man he was ever ready to give; no charity ever appealed to him in vain; in scores, nay, in hundreds of instances he restored the funds of failing institutions by his gratuitous services and active self-sacrifice; and it is a question with us whether, although he died worth £20,000, he did not give away during his long career more than he actually accumulated for himself. As to his temper: well, to be sure he could be terribly angry at times; but mark this one thing—his wrath, fiery as it often was, never made him unjust, and never left a spark of malice behind it. Once, when a pupil was playing wrong notes he rated him violently. "Perhaps," said the young man, "the manuscript is not correct." Handel examined it, and finding that to be the case, begged pardon and apologised gracefully. On another occasion, at Vauxhall, Handel invited a gentleman to listen to a piece of music, and give him his opinion of it. The gentleman did so, and pronounced it poor stuff, not worth listening to. "So it is," said Handel, "I thought so when I had finished it," a reply which no man of really bad or vicious temper would have uttered. What annoyed Handel most, and would call forth his most angry retorts, was to be questioned by boobies about trivial matters. He was heard to say, "If a man gannot tink but as a fool, ledt him keep his fool's tongue in his own fool's moud"—a valuable lesson, the coarseness of which, we submit, is condoned by its moral value.

The character of Haydn contrasts strongly with that of Handel. He was a little fellow with a dark complexion, and was of low origin, his father being a working wheelwright, and his mother a cook. He knew the scourge of poverty in his youth, and often suffered real privations. When Prince Esterhazy called him a nigger, and told him to go and get a curly wig, a new coat, bands, and red heels, Haydn quietly went and did as he was ordered. Imagine Handel receiving such an order as that! While yet young, Haydn suffered himself to be beguiled into a foolish marriage, which ere long resulted in a separation. Eventually his genius and industry were rewarded by princely patronage, and from that time forth he devoted all energies of mind and body to his art. Indulging in no luxury, wasting no time, he composed an enormous number of works. His religious principles were deep and strong; when engaged on sacred music, it was his custom before beginning to compose, to kneel down and to pray to God devoutly that he might be enabled to praise him worthily.

The character of Mozart is deeply interesting. From his earliest childhood, it seemed to be his perpetual endeavour to conciliate the affections of those around him; in truth, he could not bear to be otherwise than loved. The gentlest, the most docile and obedient of children, even the fatigues of a whole day's performance would never prevent him from continuing to play or practise if his father desired it. Throughout the whole of his career he seemed to live much more for others than for himself. His great object at the outset was to relieve the necessities of his parents; afterwards his generosity towards his professional brethren, and the impositions practised by the designing on his open and unsuspicious nature, brought on difficulties; and, finally, those exertions, so infinitely beyond his strength, which in the ardour of his affection for his wife and children, and in order to save them from impending destitution, he was prompted to make, destroyed his health, and hurried him to the grave in his thirty-sixth year.

Sonnets of the Sacred Year.

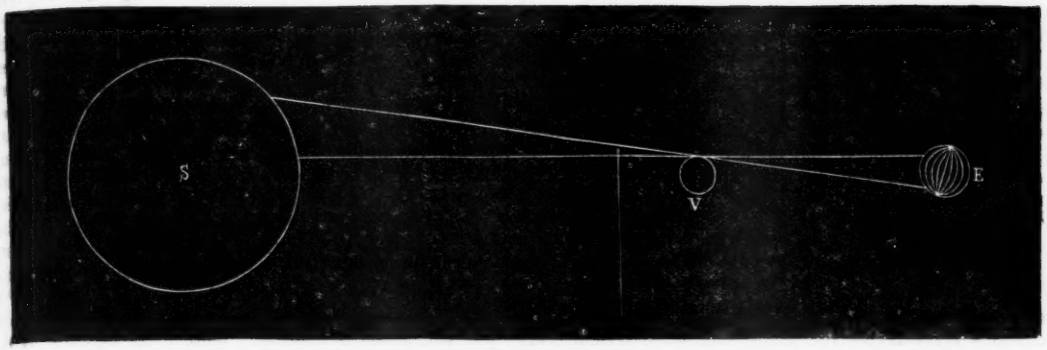
BY THE REV. S. J. STONE, M.A.

THE FOURTH SUNDAY IN LENT.

"And a great multitude followed Him . . . and Jesus took the loaves; and when He had given thanks, He distributed to the disciples, and the disciples to them that were set down."—St. John vi. 2 and 11.

"FOLLOW," the Voice said from the wilderness;
"But oh! the long-loved joys I leave behind,
The dear delights of flesh and eye and mind
I' the fair and lordly city! Can He bless
To the height and depth of these?" So in distress
Of sordid doubt I paused. Yet on the wind
Still came the calling—"They who lose shall find,"
Whereon I rose and followed in the press.
Oh, rugged was the path, and long the day,
And bare the wild. But then the Prophet turned
And taught me, and my heart within me burned,
And I forgot those sorrows of the way.
And then—O Master, resting at Thy feet,
I knew no joys like Thine, no Food so sweet.

THE TRANSIT OF VENUS.



DIAGRAM, SHOWING THE EFFECT OF PARALLAX ON THE POSITION OF VENUS ON THE SUN'S DISK, WHEN VIEWED FROM OPPOSITE ENDS OF THE EARTH.

GREAT preparations are being made for observing the transit of the planet Venus across the sun's disk on the 9th December, 1874. The interest taken in this event, among all civilised nations, arises mainly from the hope of ascertaining the exact distance of the sun from our earth. In round numbers, this distance is said, in most books on astronomy, to be 95,000,000 of miles, but some recent calculations have reduced the distance to 92,000,000 of miles. It is expected, both from the number of qualified observers at well-chosen stations, and from the excellence of the instruments now in use, with the aid also of photography, the chances of error in observation will be reduced to a minimum, and this great problem be definitely solved. With the sun's distance from the earth as the unit of measure, the relative distances and magnitudes of all the other planets can be ascertained. A knowledge of this value also gives us a general conception of the enormous void between us and the thousands of stars which adorn the midnight sky.

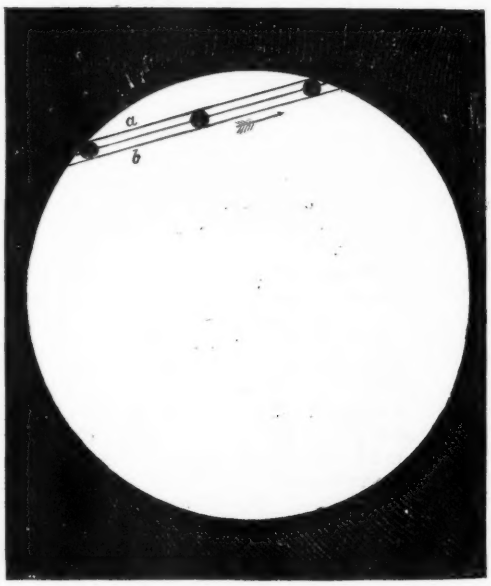
It is on account of the difficulty of obtaining perfect accuracy in such delicate observations as those relating to the transit of Venus, that so many expeditions will leave the shores of Europe and America in the early part of the summer of the present year to be stationed on various portions of the earth's surface. The choice of the observing stations has required great consideration on the part of those who have had the direction of the preliminary arrangements in the various countries. In England, the Astronomer Royal, Sir George Airy, has given the benefit of his counsel and experience, and it is believed that the places finally selected by him for the English observers will be found to have been judiciously chosen after a due attention had been paid to all the required circumstances. Some exception, however, has been made to the Astronomer Royal's choice of stations. Several astronomers, whose opinions must naturally have great weight, have advocated very strongly an extension of the English stations towards the Antarctic continent, and even at Possession Island, where Sir James Ross made a temporary landing after some difficulty. This extension would have enabled the observers to carry out the method of observation proposed by Halley in 1716 under the most favourable circumstances. The Government authorities, represented by the Board of Admiralty, were, however, so fully convinced of the practical difficulty of locating a party of observers in these unknown and dangerous regions, that they were content to let the stations remain as selected by the Astronomer Royal, who is quite prepared to recommend the adoption of branch stations as far south as practicable.

A transit of Venus across the solar disk is a very rare occurrence; so rare is the phenomenon that only three transits have been observed since the invention of the telescope in the early part of the seventeenth century. They take place alternately at the very unequal but regularly recurring intervals of 8, 122, 8, 105, 8, 122, etc., years in succession, and always in June and December. Two hundred and fifty years ago, the motions of the planets were so imperfectly known, that no reliance could at any time be placed on the fulfilment of any astronomical prediction at the exact time appointed, and it was not till the year 1629 that the improved methods of making astronomical observations enabled the celebrated Kepler to predict the occurrence of a transit of Venus on the 6th of December, 1631. His calculations, considering the imperfect materials on which they were based, were tolerably exact, and they showed that the planet would not enter upon the solar disk till after sunset, and that consequently the transit could not be observed in Europe. The accuracy of this calculation was tested by Gassendi, who, having some doubts of the reality of Kepler's prediction of the time of transit on account of the imperfect knowledge in those times of the true motions of the sun and Venus, resolved to watch the solar disk during several hours before the sun sunk below the horizon, and again after sunrise on the following morning. In a letter to Schickhard, Gassendi gave the result of his unsuccessful watching, for no trace of the planet could be perceived during the afternoon of the 6th of December, nor on the morning of the 7th. Modern calculations have since conclusively proved that the transit really occurred during the night between the 6th and 7th of December, as announced by Kepler, and consequently it passed away unobserved.

It was the opinion of Kepler that the next transit of Venus could not occur till the year 1761. In this he was, however, mistaken, for the phenomenon was repeated in December, 1639, but unknown at the

time to astronomers generally, who had trusted too implicitly to the assertion of Kepler. It happened, however, that shortly before the occurrence of this transit, a young Lancashire curate, Jeremiah Horrox, entered into the subject of astronomical calculations with a zeal and natural ability seldom to be met with in so young a man. His name has been handed down to our own time as that of "one of England's most gifted sons, and the pride and boast of British astronomy." Although only twenty years of age, he convinced himself that at the inferior conjunction of Venus with the sun in December, 1639, the planet would pass over the solar disk, and the ingress would be visible in England. Horrox communicated his belief to his friend William Crabtree, who resided near Manchester, and to his brother at Liverpool, requesting that they would keep a watch on the sun at the time indicated by him. He excuses himself for not informing other friends on account of the limited time before the occurrence of the transit, for "although England is not without votaries of astronomy, with some of whom I am acquainted, I was unable to convey to them the agreeable tidings, having myself had so little notice." Horrox and Crabtree were the only persons who witnessed the planet in 1639 on the solar disk, the former observing the internal contact at the ingress, while the latter saw it some time later projected as a black spot on the solar surface. They were thus the first observers of a transit of Venus. When the time of observation arrived, which Horrox himself found by an exact calculation of the times of inferior conjunction of the sun and Venus, he retired to his apartment with a determination to keep a strict watch on the sun so long as any chance existed of observing the planet. "Anxiously intent," he remarks, "on the undertaking through the greater part of the 23rd of November (O.S.), and the whole of the 24th, I omitted no available opportunity of observing the ingress of Venus. I watched carefully on the 24th from sunrise till nine o'clock, and from a little before ten until noon, and at one in the afternoon, being called away in the intervals by business of the highest importance, which, for these ornamental pursuits, I could not with propriety neglect. But during all this time I saw nothing in the sun except a small and common spot, consisting, as it were, of three points at a distance from the centre towards the left, which I noticed on the preceding and following days. This evidently had nothing to do with Venus. About fifteen minutes past three in the afternoon, when I was again at liberty to continue my labours, the clouds, as if by divine interposition, were entirely dispersed, and I was once more invited to the grateful task of repeating my observations. I then beheld a most agreeable spectacle, the object of my sanguine wishes, a spot of unusual magnitude and of a perfectly circular shape, which had already fully entered upon the sun's disk on the left, so that the limbs of the sun and Venus precisely coincided, forming an angle of contact. Not doubting that this was really the shadow of the planet, I immediately applied myself sedulously to observe it." Crabtree failed to notice the beginning of the transit, but during a break in the clouds shortly before sunset, he was rewarded "by beholding the pleasing spectacle of Venus upon the sun's disk. Rapt in contemplation, he stood for some time motionless, scarcely trusting his own senses through excess of joy."

After the historic observations of Horrox and Crabtree, an interval of nearly 122 years passed away before the next transit of Venus occurred. Meanwhile, the subject of utilising the expected transits, visible in 1761 and 1769, for the purpose of directly determining the distance of the sun from the earth, engaged the attention of several astronomers. By making a series of observations on some uniform plan at various prearranged stations, selected solely with reference to the requirements of the problem, it was considered that if the observations were successful at the northern and southern stations, a result would be obtained which could not fail from being an accurate one. The original suggestion, pointing out the utility of the transits of the inferior planets, Mercury and Venus, in furnishing an accurate method for determining the value of the solar parallax,* is due to James Gregory, an eminent mathematician of the seventeenth century, who thus alludes to the subject in his treatise entitled "Optica Promota." "This problem has a very beautiful application, although perhaps laborious, in observations of Venus or Mercury when they obscure a small portion of the sun, for by means of such observations the parallax of the sun may be investigated." The principal credit is, however, properly given to Dr. Halley, Astronomer Royal 1719-42, who, in a paper published in the "Philosophical Transactions" for 1716, proposed a method for the observation of the transits of 1761 and 1769, which was not only adopted, where practicable, in the observations of



a. PATH OF VENUS ACROSS THE SUN AS VIEWED FROM THE SOUTHERN HEMISPHERE.
b. THE PATH AS VIEWED FROM THE NORTHERN HEMISPHERE.

these transits, but is still the most popular method proposed for that of 1874. It would be out of place here to give a technical explanation of this method of Halley in detail, but its principal value consists

* The word *parallax*, which in an essay on the transit of Venus must of necessity frequently occur, is a technical word representing the apparent angular motion of an object arising from a change of the observer's point of view: and when we speak of the solar parallax, we are referring to the angle under which the radius of the earth would be seen if viewed from the centre of the sun.

in its being independent of any accurate knowledge of the geographical position of the observing stations. The observation of the whole duration of the transit at a northern and a southern station is all that is required. By recording the exact time of contact of Venus with the edge of the sun at ingress and egress, it is easy to determine the time of duration, and the portion of the solar surface traversed by the planet as seen, affected by parallax, from the two opposite comparison stations. As the transit of December 9, 1874, occurs on the northern half of the sun, the observers in Kerguelen's Land will see Venus higher on the sun than those in Japan, and the more northerly transit-path over the upper part of the sun will be evidently shorter than that nearer the sun's centre. Then if we compare the difference between the lengths of the two paths with the apparent diameter of the sun, the angular value of which is well known, we are able to determine the comparative angular value of the width between the paths with considerable accuracy. As it is intended to use photography in the forthcoming transit, it is expected that the comparison of the sun-pictures taken during the transit will afford a convenient method for determining the exact distance between the two transit-paths, and thus give a series of independent measures. The subsequent part of the work may be done on the return of the expeditions, when all the British observations will be examined and arranged under the direction of the Astronomer Royal, who will deduce the value of solar parallax as determined from the observations by the Halley and Delisle methods. Ultimately, the results of all the expeditions, English and foreign, will probably be combined to produce a standard value to be adopted by all nations.

M. Delisle, a French mathematician, proposed his method sometime after the date of Halley's paper, as one peculiarly suitable for the transit of 1761. In this method it is not required that the whole duration of the transit be visible, one phase, either the ingress or egress, being sufficient, if the opposite stations are considerably apart. But the longitudes of the stations must be known accurately, the want of which, in 1761 and 1769, was the principal cause of the comparative failure of this method in those years. This operation is not always an easy one in out-of-the-way places, and in the middle of the last century it was almost impossible to observe the latitude and longitude of distant places with that degree of accuracy which, for the success of the observations, is imperative. This difficulty, which troubled the astronomers of the last century, is now completely removed by the increased precision with which modern astronomical instruments are constructed, and also in consequence of the almost perfect tables employed in the calculations of the positions of the sun and planets at the time of observation. It is very proper that the arrangements made for the observation of the approaching transit include the methods both of Halley and Delisle, more especially as some of our leading astronomers have different opinions of their relative superiority on this occasion.

The principal object of Captain Cook's first voyage of discovery in H.M.S. Endeavour was the selection of a convenient station in the Pacific Ocean for the observation of the transit of 1769. He was accompanied by Mr. Charles Green, a former assistant at the Royal Observatory, Greenwich. The transit was observed by them at Otaheite, or King George's Island, and also by Dr. Solander. Each of these observed the times of ingress and egress, the whole duration of the transit being visible. These observations are of the highest importance, and in combination with those made at Wardhus, in Lapland, by Father Hell, have had very great weight in producing the correct value of the solar parallax from the observations of the transit in 1769. The transit of 1761 was comparatively a failure from various causes, but valuable lessons were derived from the experiences of the different observers, which were turned to good account in the consideration of the best method to be employed by the observers of 1769. Hence this second transit was looked forward to by the astronomers of the day with increased eagerness, heightened probably by the knowledge that this was the last opportunity that could arise for 105 years.

The transit of 1769 was visible in Great Britain and other countries in Europe, but the sun set below the horizon while Venus was on the disk. The ingress was, however, very extensively observed, and all the observations have been used by Encke in his treatise on this transit, but they have necessarily not much weight in comparison with others. The resulting value of solar parallax really practically depends upon the observations made at King George's Island by Cook, Green, and Solander; at Wardhus by Father Hell; at Hudson's Bay by Wales and Dymond; and at San Josef, California, by La Chappe and others. In addition to Encke's celebrated treatise, the observations were also reduced by Don Joachim Ferrers, forming the subject of a valuable memoir published in the "Memoirs" of the Royal Astronomical Society. The Astronomer Royal, so long ago as 1857, and many years before recent investigations have modified Encke's deduced value of the solar parallax, expressed his opinion that the time had arrived for reconsidering the whole question. "The received measure of the sun's distance," he remarks, "depends on the transits of Venus of 1761 and 1769, but mainly on the latter. Very careful discussions of these will be found in the two books published by Encke, and in a memoir of great value by Don Joachim Ferrers. On examining these, it will be found that, though there is very close accordance in the results obtained by the different investigators, and from the different transits, yet all investigators have expressed their doubts upon those results. In the transit of 1761, the result depended almost entirely upon an accurate knowledge of the differences of longitude of very distant stations, which are undoubtedly subject to great uncertainty. In the transit of 1769, it happened that the result depended almost entirely upon the observations made by Father Hell, at Wardhus; and to these great suspicion has attached, many astronomers having, without hesitation, designated them as forgeries. It is evidently desirable to repeat the practical investigation when opportunity shall present itself."

It is proper to remark that the stigma attached to Father Hell's observations has been removed since the above remark was written. Mr. Stone, who rediscussed the observations in 1868, was favoured with a facsimile of Hell's entry in his observing book, and after a very careful examination of the separate figures, he was convinced that the original entry of the time of observation has not been meddled with,

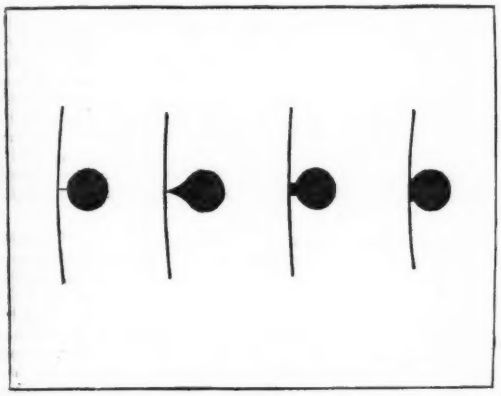
and that the apparent alterations and additions were chiefly in the order of arrangement and explanation. Mr. Stone differs considerably from Encke in the interpretation of the observers' notes, especially with regard to the phase observed, and he considers that by strictly interpreting the observers' language, he has been led to a solution which satisfies the whole of the ten observed durations. Assuming his interpretations to be sensibly correct, which is now generally admitted, the value of the solar parallax determined from the transit of 1769 is 8″·91, equivalent to about 91½ millions of miles as the measure of the sun's distance. When we consider that the general success of this transit mainly depended upon the observations of Cook and Green at Otaheite, it cannot be denied that the expedition to the South Seas in 1769 has nobly answered every astronomical purpose for which it was originally designed, for it has always been esteemed as one of the highest scientific glories of Great Britain in the last century. Let us hope that the extensive preparations now in progress in different countries for the observation of the forthcoming transit, will be followed by even greater success, and thus decide for our successors the true value of the unit of distance in astronomy.

We have already mentioned that it is intended to employ principally two methods of observation of the ingress and egress: first, that proposed by Halley, giving the exact duration of time between the beginning and end of the transit, and which requires that both of these phases should be visible at two very distant observing stations; and the second, proposed by Delisle, requiring only one phase, either the ingress or egress, to be visible, but that the absolute difference of longitude between the comparison stations must be known with extreme accuracy. Where it is impossible to determine the longitude of the station, the method of Delisle is certain to give comparatively inferior results, while under the same circumstances the observation of durations is free from this difficulty. In choosing stations, therefore, regard must be had to the requirements of each, giving preference to Delisle's method only where it is intended to establish instruments specially adapted for the determination of longitudes with great precision. At stations where both methods are applicable, as at Kerguelen's Land, both methods will, as a matter of course, be followed. There is no doubt that the English stations would have been chosen with reference to the observation of durations rather than of single contacts, if easily-accessible stations could have been found, especially as it has been clearly shown by Mr. Proctor in his very beautiful maps of the transit, that Halley's method is more applicable to the transit of 1874 than to that of 1882. But unfortunately the most favourable part of the southern hemisphere from which the durations could be observed is situated along the shores of that unknown, and to some extent mythical, land, which extends within the Antarctic circle, from Enderby Land to Possession Island. It is the opinion of the Hydrographer of the Admiralty that this line of coast is only approachable during a very short period in summer, and that, were it determined at all hazard to send an observing party there, a residence of nearly twelve months in this icy region before the transit occurred would be necessary. The dangers attached to such a station have been sufficient to prevent the selection of any spot within the Antarctic circle. This does not, however, interfere much with the adoption of Halley's method at other and more convenient stations, such as Kerguelen's Land, Crozet Island, or the Macdonald or Heard Islands, all of which are favourably situated in comparison with the northern stations. In the northern hemisphere there is no lack of suitable localities, especially in northern China, Japan, and north-eastern Siberia, all available for the observation of the transit by Halley's method.

After a very careful consideration of the whole subject, the Astronomer Royal has selected five principal English stations, Alexandria, Kerguelen's Land, Rodriguez Island, Christchurch in New Zealand, and Honolulu. It is also intended to have two branch stations, if practicable, in the Sandwich Islands, and one at the Macdonald Islands, south of Kerguelen's Land, if there is a convenient anchorage, and if not, at another part of Kerguelen's Land. The Heard Islands, near the Macdonalds, have been also suggested. Each of the principal stations will be furnished with a complete set of astronomical instruments—a transit instrument for finding the local time, and for the observation on the meridian of the moon and certain selected stars near her for determining the longitude; an altazimuth, by which the moon will also be observed for the same purpose, and for the observation of stars for latitude; an equatorial, with an object-glass of six inches aperture, for observing the phenomena of the transit; and a photo-heliograph for recording numerous sun-pictures by photography as the planet crosses the solar disk. The branch stations will be furnished with the necessary instruments for the observation of the transit, but no photographic or independent longitude operations will be carried on at these supernumerary stations. In addition to these principal instruments, each station will be provided with clocks, chronometers, a barometer, and other scientific apparatus. These instruments have for the most part been constructed on account of this expedition. The Astronomer Royal took advantage, however, of the circumstance of several equatorials, suitable for these observations, being offered for sale just at the time when his attention was directed to the best means of collecting the required instruments. In this manner he purchased on behalf of the Government the equatorials formerly in the private observatories of Mr. Corbett, of Imber Court; Dr. Lee, of Hartwell; Mr. Naylor, of Altrincham, and Mr. Hodgson, of Chingford. They have all been adapted to the latitude of the station where each will be employed, and as their object-glasses are nearly of the same aperture, the different phases of the transit will be advantageously observed at the comparison stations with similar optical means. It can be easily perceived that a well-furnished observatory will be planted at each station, and that the observation of the transit itself will form but a small portion of the observing operations. True, great skill will be required, accompanied with strong presence of mind, when the eventful moment arrives to note correctly the first indication of the approach of the planet as the "black drop" is seen suddenly to appear on the border of the sun, for success will then depend on steadiness of eye and an absence of anything like nervousness. But we do not want transit instruments and altazimuths for this observation, their very names point to a different class of labour, and the astronomers must be prepared for many months'

employment in observing the moon and stars before they will be able to accumulate sufficient data required to determine with accuracy the longitude of the station, without which, as we have before remarked, the observations of the transit, if treated by Delisle's method, will always be subject to some uncertainty.

To ensure success with regard to the personal arrangements, a large staff of observers—principally scientific army and navy officers—have for some time been undergoing a severe training in the practical use of the same instruments which will be employed in the expedition. Not only are these observers spending night after night, either at the Royal Observatory or at the temporary stations in the neighbourhood, determining the local time, the latitude and the longitude of their little observatory huts, but they also devote several hours in the computing-room during the day, making themselves acquainted with the best methods of reducing their observations of the preceding night. To give the observers an idea of the transit, a working model exhibiting the phenomena in their true magnitude and velocity, has been constructed at the Royal Observatory, a black disk representing Venus being made to pass mechanically over the image of the sun reflected in a mirror. Similar appearances of



DIFFERENT PHASES OF THE "BLACK-DROP" OBSERVED AT INTERNAL CONTACT IN TRANSITS OF VENUS, BOTH AT INGRESS AND EGRESS.

the "black drop" are presented in this model, when the edge of the black disk of Venus is in contact with the assumed limb of the sun, as those recorded by observers of transits of Mercury and Venus, the true interpretation of which has given so much trouble in connection with the discussion of the transit of 1769. No pains have been spared by the Astronomer Royal to qualify the observers in this novel kind of observation, and it is expected that before the departure of the expeditions in the summer months of 1874, a trained body of earnest and devoted men of science will be ready to undertake to sustain the scientific honour of Great Britain, and to represent their illustrious instructor in the various parts of the globe selected for their observing stations.

In addition to the expeditions to the five stations preparing under the personal superintendence of Sir George Airy, a private expedition at the expense of Lord Lindsay is intended to occupy the Island of Mauritius, where, as at Kerguelen's Land, the observations are applicable both to the methods of Halley and Delisle. He intends to erect a well-equipped observatory, containing a transit instrument, an altazimuth, an equatorial, a chronograph, and a siderostat for photographic observations. From what we have already seen of Lord Lindsay's astronomical zeal on many occasions, the station at Mauritius will be second to none, both in personal and instrumental appliances, and it will be a most valuable supplementary British station. The Indian Government have lately sanctioned an additional British station in Northern India, which will be placed under the care of Colonel Tennant.

As in the transit of 1769 observers of different nations were engaged, so in 1874 the leading astronomers of Europe and America are making extensive preparations for their separate expeditions. It will not, however, be necessary to give more than a very brief outline of each country's arrangements. The French astronomers intend to have four principal stations—at the Island of St. Paul and Campbell Island in the Southern Ocean, and at Pekin and Yokohama. If their Government will grant sufficient funds, it is proposed to add some secondary station in two of their colonies and one at Jerusalem; it is hoped, also, to establish one at the Marquesas Islands by sending a well-trained observer to Noukahiva. The Germans have fixed upon Kerguelen or Macdonald Islands, the Auckland Islands, and one station either in China or Japan.

The Russian astronomers will confine their labours to a long line of stations within their own territory. They are twenty-seven in number, extending from the north-eastern part of Siberia to Odessa and Nicolaiew in Southern European Russia. The severity of the winters in North-eastern Siberia is very great, and it has been remarked by Professor Struve that the temperature to be expected at the time of transit at Nertschinsk, and several other stations in that district, is *zero* of Fahrenheit. It is reported, however, that although the cold is so severe, it is commonly accompanied with a complete calm and dry air, and that it is not really unpleasant for astronomical observations. At three of the stations photo-heliographs will be provided.

The American Government have been very liberal in their grant of the funds necessary for their expedition, the sum being far in excess of that placed at the disposal of the Astronomer Royal. Their stations will therefore be furnished with instruments designed for the observation of contacts, measurement of cusps, and for taking photographs of the sun, with Venus on the disk, through the entire period of the transit, which will last several hours. Wladiwostock in Eastern Siberia, Nagasaki in Japan, and Pekin, are the proposed northern stations; while Chatham Island, New Zealand, Hobart Town, and possibly Kerguelen's Land or Crozet Island, are the southern. These places are well selected to carry out their plan of observation.

Besides these great preparations going on in Europe and America, there are others less elaborate but still highly important, which ought to be mentioned. The Governments of New South Wales, Victoria, and South Australia, have each sanctioned a limited expedition under the control of the local astronomers, and a part of the transit will be visible at the Cape of Good Hope, where it will probably be observed, although the observation there will not be of much scientific value on account of the small factor for parallax.

Varieties.

RAILWAY ACCIDENTS.—A committee of the Edinburgh Chamber of Commerce lately presented a report with reference to railway accidents. They decidedly recommend the compulsory adoption of the block-telegraph system, the limitation of the hours of labour, the strict regulation, if not prohibition, of the sale of intoxicating liquors at all but the principal refreshment-rooms; and, especially, the passing of a measure which will furnish whatever department may be determined on with the needful powers for enforcing the discipline of railway employés, and the execution of all enactments in the public interest. They also recommend for serious consideration the propriety of limiting the size of trains, of holding the directors of companies responsible for their punctuality, of prescribing a maximum rate of speed, especially in passing facing-points, and of prohibiting mixed trains on the principal railway routes. They express the conviction that any longer continuance of the present state of matters would be disgraceful to the Legislature, the Government and the country; that nothing is easier than the immediate prevention of a great part of the calamitous occurrences which are now so frequent; and their hope that the subject will not now be allowed to rest until such measures have been adopted as will inspire confidence by giving reasonable hope of security in the only mode of travelling now available to the public—a result not more beneficial to the community than necessary for the interests of the railway companies themselves. Similar reports have been prepared by the Manchester Chamber of Commerce and other public bodies.

CORONATION OF CHARLES X.—The poem in the "Leisure Hour" for January (p. 21) on the crowning of Charles X at Rheims may well be entitled "a forgotten poem." It appeared in the "New Monthly Magazine" for 1824, at that time under the editorship of Campbell the poet. At the time of its appearance it was attributed to the pen of Mr. Horace Smith, one of the authors of the "Rejected Addresses," but I am not aware that the authorship has been claimed by any one. I do not know whether I have been very precise as to the date, but I am quite certain it was either in the "New Monthly" for 1824 or 1825. —G. R. CARTER, M.D.

CLERICAL INCOMES IN NEW YORK.—The religious denominations in New York have, in the aggregate, 349 churches. The salaries of the ministers in several instances, in addition to an official residence, range from 600 dollars to 12,000 dollars, but it is right to explain that only sixty receive 5,000 dollars or upwards, while the number receiving over that sum is only thirty, and only ten of the thirty are paid 10,000 dollars or over. Six of these fortunate ten are pastors of Episcopal churches. Twenty Baptist ministers get from 1,000 dollars to 3,000 dollars; ten ministers in the Lutheran Church are paid from 1,000 dollars to 2,500 dollars; forty in the Methodist Church at the same rates; thirty in the Presbyterian from 1,000 dollars to 3,000 dollars; thirty-five in the Episcopal from 1,000 dollars to 2,500 dollars; and ten in the Reformed Dutch from 1,000 dollars to 3,000 dollars. It is stated as safe to say that not more than half the ministers in New York receive salaries of 2,500 dollars, while a very large number do not get more than half this sum. Still, with few exceptions, the ministers of New York are paid at least as liberally as any class of intellectual workers.—*New York Paper.*

BLACKBEETLES.—A correspondent of "Land and Water" says: "The basement of my house swarmed this year with blackbeetles, and although beetle traps destroyed big bulks, yet there did not appear any diminution of quantity, and I was a good deal disgusted. Having come across a half-grown hedgehog one day in the country, and having often heard that these animals did great execution among beetles, I took it home and gave it a trial, first in my kitchen. The following morning the floor was covered with heads and tails of blackbeetles to an extent which caused the servants at first to think the cure worse than the evil. The next morning there were not so many, and after changing the hedgehog to the various basement departments, over a period of about ten days, the wretched beetles were all destroyed or banished. One day, after the hedgehog had been in my possession only two or three days, I took it into the garden to see how it would like a little variety of diet, and in a very few minutes it crunched up sixteen snails which I put before it. The hedgehog has not in any way made itself a nuisance."—[See an article on Blackbeetles in "Leisure Hour" for August, 1870.]

LORD PALMERSTON.—Lord Palmerston swayed the House of Commons by his eloquence, he attracted it by his presence, and enlightened it by his wit, and kept it in a proper state of mind by his untiring and inexhaustible good humour. He was at once a great statesman, a great political leader, a great judge, a great manager and manipulator of mankind; and all these qualities he used primarily, I am bound to say, for the good of whole parties and the whole House, and secondly, no doubt, to the great advantage of that political party which had the immense honour and advantage of having him for their leader. I cannot express to you the admiration I felt for the mere intellectual and physical power which I have seen Lord Palmerston exert, when I have seen him rise, with more than eighty years on his head, and answer, at two o'clock in the morning, a long and intricate debate—picking out all the topics that required explanation, discarding from the consideration of the House all irrelevant matter, and putting forward in the clearest possible manner that which was important; and that without a single note or having to appeal to any one to assist him or to refresh his memory. But greatly as we all admired Lord Palmerston's intellectual power, there was one thing which we admired even more, and which goes home to every Englishman's mind; that was his extraordinary sense of duty—his indomitable industry and perseverance. Lord Palmerston was the most regular and constant attendant of his Government in the House of Commons. He came at four o'clock four nights weekly, and sat until two o'clock in the morning, never leaving except to take a cup of tea. He was always accessible to everybody and always courteous. No reverse, no taunt, no weight of years, no labour, no exertion that he underwent ever seemed for a moment to disturb his temper or sour his good humour. He had always a courteous word for a friend or a foe, and he never seemed to think it was anything wonderful that he was able at his age to undergo these exertions. Lord Palmerston was not only a great political leader and a great statesman, he was a great Englishman, and his life should be an example to the highest and lowest of us; for whatever duty he undertook he did it, and did it thoroughly. Although he had the society of the whole world at his disposal he never left the House when there was work to be done.—*Right Hon. Robert Lowe, M.P.*

SCOTTISH SCHOOL BOARDS.—What is called the "religious difficulty," which causes so much trouble in England, is scarcely known in Scotland. At the Glasgow School Board, Dr. Buchanan, in moving to continue in all Board schools "the use and wont" of religious teaching, made a remarkable statement. Of nearly 1,000 Boards already established in Scotland, only one had adopted a resolution to exclude religious teaching from the ordinary routine of school hours. Only twelve had resolved to exclude "the Shorter Catechism" of the Westminster Assembly.

MUSIC OF SHIP LIFE.—The "New York Times" correspondent on board the United States' steamship Powhatan writes:—"After a three days' study I have discovered that our boats' crews are called and the boats sent away to the following tunes:—The steam cutter by 'Cheer up, Sam;' the gig by 'Good-bye, Charlie;' the launch by 'Somebody in the House with Dinah;' the first cutter by 'The Girl I left behind me;' the second by 'My Mary Ann;' the third by 'How's that for high?' the fourth by 'Shabby Genteel;' the whale-boat by 'Josephus' Morning Glory;' the barge by 'Captain Jinks of the Horse Marines,' and the dingy by 'Shoo Fly.' Every man knows the tune that calls him."

RAILWAY STATISTICS.—"The total length of railway open for passenger traffic on the 31st of December, 1872, was 15,814 miles, distributed as follows:—In England, 11,136 miles; in Scotland, 2,587 miles; in Ireland, 2,091 miles. There was an increase between the 31st of December, 1871, and the 31st December, 1872, from 15,376 miles to 15,814 miles, or at the rate of nearly 3 per cent."—*Captain Tyler's Report.*

A USEFUL LESSON.—A worthy Scotch couple, when asked how their son had broken down so early in life, gave the following explanation:—"When we began life together, we worked hard and lived upon porridge and such like, gradually adding to our comforts as our means improved, until we were able to dine off a bit of roast meat, and sometimes a boiled chickie (chicken); but Jack, our son, he worked backward, and began with the chickie first."